

Implementing Arrangement #1

GFESuite Implementation by the Bureau of Meteorology, Australia

Reimbursable Arrangement

**Between Global Systems Division (GSD) of the Earth
System Research Laboratory (ESRL) of the National
Oceanic and Atmospheric Administration of the
Department of Commerce of the United States of
America**

and

Bureau of Meteorology, Commonwealth of Australia

I Scope

This arrangement describes scientific and technical activities to be undertaken by Global Systems Division (GSD) of the Earth System Research Laboratory (ESRL) of the National Oceanic and Atmospheric Administration (NOAA) of the Department of Commerce of the United States of America and the Bureau of Meteorology (Bureau), Commonwealth of Australia. The two institutes will collaborate on the implementation, testing, operational use of the Graphical Forecast Editor Suite (GFESuite) within the Bureau for weather forecasting activities discharged by the Bureau of Meteorology under the Meteorology Act 1955 of the Commonwealth of Australia. These activities will include associated research and training activities.

A central mission of the GSD is to do research, to develop, and to transfer new technologies and scientific advancements to the operational elements of NOAA and other government entities. GSD facilitates these transfers to the nation's operational atmospheric and oceanic services by conducting a program to integrate, evaluate, and apply developments to information and forecast systems. The GFESuite is used today by the National Weather Service (NWS) regional and national forecast offices. GFESuite is a suite of software that enables a grid representation of meteorological weather elements, tools for the manipulation and modification of the grid fields, both locally and with remote offices and a set of systems for the generation of text, graphical and associated digital meteorological products. The GFESuite enables forecasters to provide a digital representation of weather elements and to generate a range of local and

national forecast products required to provide weather services to users of meteorological information.

All tasks outlined in this Arrangement are supported by GSD's mission. Furthermore in performing this work for the Bureau, GSD gains valuable additional functionality in the GFESuite that will benefit the NWS and other federal agencies. With respect to aviation safety and air navigation, this project will enhance forecaster capabilities to provide additional short term (nowcasting) forecasts for airport environments. These forecasts will assist in alerting pilots to weather which could impact aviation safety by integrating different weather parameters and information into a range of aviation products.

II Authorization

The activities described in this arrangement will be carried out under the general terms and conditions established by the Memorandum of Agreement on Technical Cooperation in Meteorology, Oceanography and Hydrology (hereinafter referred to as the "MOA") between NOAA and the Bureau under the Agreement relating to Scientific and Technical Cooperation between the Government of the United States and the Government of Australia signed February, 28 2006. This agreement (see attachment A) is hereby attached. NOAA's legal authorities are: (1) 49 USC 44720 (b) which authorizes the Secretary of Commerce to maintain and coordinate international exchanges of meteorological information for air safety and air navigation, and (2) 49 USC 47302 which authorizes the Secretary of Commerce to accept payments from Governments for services sold pursuant to 49 USC 4470

III Purpose

During the period of Implementation Arrangement #1, the designated GSD team will focus on the following tasks:

- a. Development and adaption of the GFESuite systems for use within the Bureau
- b. Review of Bureau developments and where appropriate assistance with the interface of the GFESuite with Bureau operational forecast systems
- c. Scientific and technological development associated with the use of GFESuite by the Bureau
- d. Training and transfer of expertise associated with meteorological and systems aspects of the GFESuite
- e. On going support for the operational use of the GFESuite by the Bureau
- f. Other areas as the parties may determine

Detailed specification of the tasks is provided (Attachment B) in the Statement of Work (SOW) attached along with a timeline and acceptance criteria.

GSD is contributing expertise and technology which is currently in the public domain but must be tailored to meet Bureau needs. This arrangement provides a basis to build Bureau expertise in this area through this cooperative arrangement. GSD's and Bureau performance under this arrangement is subject to availability of funds.

IV Financial Provisions

The total cost of the activities described in this arrangement is mutually agreed to be USD150,000 per year for two years payable to GSD by the Bureau.

All monies payable hereunder shall be in U.S. Dollars. The Bureau agrees to reimburse GSD per Payment Schedule 1 below in support of the implementation of the GFESuite within Australia based against milestones as outlined in the SOW. Should both parties mutually agree that it is in their or its best interest to terminate the activities prior to the end of the collaborative period as outlined in the SOW Attachment A, Payment Schedule 2 shall apply. Such termination would be planned to coincide at the next Milestone and the total termination payout at that Milestone is indicated.

Payment Schedule 1

Invoice No.	Year	Amount Due	Payment Due Date
1	I	\$ 50,000	Milestone 1 + Date MOA Signing + 45 calendar days
2	I	\$50,000	Milestone 5 Date + 45 calendar days
3	I	\$50,000	Milestone 8 and Year II start Date+ 45 calendar days
4	II	\$50,000	Milestone 10 Date + 45 calendar days
5	II	\$50,000	Milestone 12 Date +45 days
6	II	\$50,000	Milestone 15 Date + 45 calendar days

Payment Schedule 2

Invoice No	Amount Due	Payment Due Date
1	\$ 50,000	Effective Date + Milestone 1 +45 calendar days
2	\$65,000	Effective Date Milestone 5 + 45 calendar days
3	\$65,000	Effective Date Milestone 8 + 45 calendar days
4	\$65,000	Effective Date Milestone 10 + 45 calendar days
5	\$65,000	Effective Date Milestone 13 + 45 calendar days
6	\$50,000	Effective Date Milestone 15 + 45 calendar days

GSD will provide an on-going base level of support (100 hours per annum), at an annual cost of USD15,000 p.a. beyond the period of the above schedule. For any on-going support beyond that level the Bureau would incur additional costs.

All invoices are to be sent to Accounts Payable, Bureau of Meteorology, G.P.O. Box 1289, Melbourne, Victoria 3001, Australia. Payments will be made by electronic funds transfer by the due date subject to receipt of a correctly rendered invoice and satisfactory achievement of the milestone to which the invoice relates.

The Bureau shall not be responsible for the payment of any export fees assessed to GSD either inside or outside of Australia with respect to the work performed or as a result of any transfers of Equipment, including any components and/or parts of such Equipment, or other goods delivered to the Bureau under this Arrangement.

V Reporting

A project plan including major milestones and timelines will be developed by the Bureau and provided to GSD for agreement. This will be monitored and reviewed periodically by GSD and the Bureau Project Managers.

Full and accurate reporting will be maintained by GSD through the Joint GSD-Bureau Management committee including 2 semi-annual reports of progress, highlighting activities undertaken, difficulties encountered, achievements made and recommendations. GSD and the Bureau will hold progress meetings fortnightly to review SOW activities, (normally conducted via conference call). At three monthly intervals during the project, the Joint Management Group will provide SOW progress reports including assessment against agreed acceptance criteria as required. The SOW will be reviewed by GSD and Bureau project managers when the MOA is signed and every six months thereafter.

VI Intellectual Property Considerations

Intellectual Property considerations are covered under the Agreement relating to Scientific and Technical Cooperation between the Government of the United States and the Government of Australia.

VII Software Licencing

The GFESuite is public domain software. The GFE does not incorporate COTS (Commercial Off The Shelf Software), therefore there are no licence fees

associated with the GFE suite. The GFE does make extensive use of open source software.

VIII Settlement of Disputes

Any disputes regarding interpretation or implementation of the arrangement will be resolved through mutual discussion between the parties

IX Effective date, Amendment and Termination

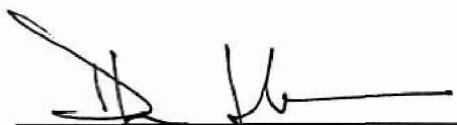
This arrangement is effective on the date of the last signature hereafter. This arrangement may be amended and/or terminated in accordance with the terms of the MOA .

X Attachments

Attachment A Memorandum of Agreement on Technical Cooperation in Meteorology, Oceanography and Hydrology between NOAA and the Bureau.
Attachment B Statement of Work

FOR THE NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION OF
THE UNITED STATES OF AMERICA

FOR THE AUSTRALIAN
GOVERNMENT BUREAU OF
METEOROLOGY

A handwritten signature in dark ink, appearing to be 'D.L. Johnson', written over a horizontal line.

Brig. Gen. D.L. Johnson, USAF (Ret.)

A handwritten signature in dark ink, appearing to be 'Geoff Love', written over a horizontal line.

Dr Geoff Love

DATE: 24 March 2006

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PLACE: Melbourne

PLACE: Melbourne